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EXAMINER	
WYATT, KEVIN S	

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2878	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/661,971	GOLDSTEIN, MICHAEL	
	Examiner	Art Unit	
	Kevin Wyatt	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Amendment after non-final and remarks filed on 03/16/2006. Currently, claims 1-31 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 9, 12-13, 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin (U.S. Patent No. 4,585,342).

Regarding claim 9, Lin shows in Fig. 1, a system comprising: a processor (3, i.e., computer); and a radiation detector (10,12,14,16,18,20,22,24, i.e., photosensitive detectors) adapted to communicate with the processor (3, i.e., computer), the radiation detector dimensioned to fit on a wafer stage (8, i.e., x-y stepping table) of a lithography tool, the radiation detector comprising a detector element to detect an amount of radiation incident on the detector element, and as memory to store (provided in the hard

drive of computer (3)) data corresponding to the amount of radiation to the processor (3, i.e., computer).

Regarding claim 12, Lin shows in Fig. 1, an apparatus comprising: a wafer (28) sized to fit on a wafer stage (8, i.e., x-y stepping table) of a lithography tool, the wafer comprising: a radiation detector to produce a signal describing an amount of radiation incident on the radiation detector (col. 3, lines 6-14); a processor (3, i.e., computer) electrically coupled to the radiation detector, the processor to process the and signal from the radiation detector (col. 3, lines 12-14 and 43-48); and a memory (col. lines 12-14 suggests that computer (3) has at least some limited memory in order to process (convert from analog signal to digital) data from each sensor) electrically coupled to the processor, the memory to store data from the processor, the data resulting from the processing of the signal describing the amount of radiation incident on the detector.

Regarding claim 13, Lin shows in Fig. 1 that the wafer (4) further comprises an output connector (provided with conductors (13)) adapted to output data from the memory (provided within computer (3)).

Regarding claim 30, Lin shows in Fig. 1 that the radiation detector comprises a wafer-shaped radiation detector.

4. Claims 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Mautz (Publication No. U.S. 2003/0074097 A1).

Regarding claim 9, Mautz shows in Figs. 4-5, a system comprising: a processor (205); and a radiation detector (200, i.e., container) adapted to communicate with the processor (205), the radiation detector dimensioned to fit on a wafer stage (provided on

the lithography tool) of a lithography tool, the radiation detector comprising a detector element (270, i.e., sensor) to detect an amount of radiation incident on the detector element, and a memory (220) to store data describing the amount of radiation detected (paragraph 0020 and 0023).

Regarding claim 11, Mautz shows in Figs. 4-5, that the radiation detector further comprises a wireless data transmitter (240) to wirelessly transmit the data to the processor (230)(paragraph 0068, lines 12-13).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1,3-8,10,14-17, 19-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (U.S. Patent No. 4,585,342) in view of Mautz (Publication No. U.S. 2003/0074097 A1).

Regarding claim 1, Lin shows in Fig. 1, an apparatus comprising: a wafer (28) adapted to on a wafer stage (8, i.e., x-y stepping table) of a lithography tool, the wafer comprising a radiation detector (10,12,14,16,18,20,22,24, i.e., photosensitive detectors) to produce a signal corresponding to an amount of radiation incident on the radiation detector, detected from the lithography tool (col. 3, lines 6-14); and a processor (3, i.e.,

computer) the radiation detector to receive the signal, the processor to process the signal from the radiation detector (col. 3, lines 12-14 and 43-48). Lin does not disclose a wireless transmitter in communication with the processor to receive results of processing the signal and output a wireless signal based on the results. Mautz shows in Figs. 4-5 a wireless transmitter in communication with the processor to receive results of processing the signal and output a wireless signal based on the results. It would have been obvious to one skilled in the art to provide a wireless transmitter such as disclosed in Mautz for the purpose of improving efficiency by reducing time required to record data.

Regarding claim 15, Lin shows in Fig. 1, an apparatus comprising: a wafer (28) substrate sized to fit on a wafer stage (8, i.e., x-y stepping table) of a lithography tool (col. 3, lines 6-14); a radiation detector (10,12,14,16,18,20,22,24, i.e., photosensitive detectors) fabricated on the wafer substrate, the radiation detector to produce a signal indicative of an amount of radiation incident on the radiation detector; a processor (3, i.e., computer) attached to the wafer, the processor electrically coupled to the radiation detector, the processor to process the signal indicative of the amount of radiation incident on the radiation detector. Lin does not disclose a wireless transmitter fabricated on the wafer substrate, the wireless transmitter in communication with the processor to receive results of processing the signal and output a wireless signal based on the results. Mautz shows in Figs. 4-5 a wireless transmitter in communication with the processor to receive results of processing the signal and output a wireless signal based on the results. It would have been obvious to one skilled in the art to provide a wireless

transmitter such as disclosed in Mautz to the device of Lin for the purpose of improving efficiency by reducing time required to record data.

Regarding claim 3, Lin further discloses that the detector is adapted to detect a dose of radiation (col. 2, lines 4-20).

Regarding claim 4, Lin further discloses that the detector is to detect an intensity of radiation (col. 2, lines 4-20).

Regarding claim 5, Lin further shows Fig. 2, that the detector comprises an array of detectors (col. 3, lines 43-45).

Regarding claim 6, Lin further shows Fig. 1, wherein the wafer further comprises alignment marks (provided on projection mask (4)).

Regarding claim 7, Lin further wherein the wafer further comprises an amplifier in communication with the radiation detector and the processor, the amplifier (amplifier stage would be provided within computer (3) prior to analyzing detector signal) to amplify the signal from the radiation detector and communicate the amplified signal to the processor.

Regarding claim 8, Lin further wherein the wafer further comprises a power source (11, i.e., detector power supply) coupled to the processor (3, i.e., computer).

Regarding claim 10, Lin further shows in Fig. 1, the processor (3, i.e., computer) is adapted to the amount of radiation detected to a reference; and the processor further comprises an output to output a signal for calibrating the lithography tool (col. 3, lines 43-64).

Regarding claim 14, Lin discloses the claimed invention as stated above. Lin

does not disclose that the wafer further comprises a wireless transmitter coupled to the memory to wirelessly output the data from the memory. Mautz shows in Figs. 4-5 a wireless transmitter coupled to the memory to wirelessly output the data from the memory. It would have been obvious to one skilled in the art to provide a wireless transmitter such as disclosed in Mautz to the device of Lin for the purpose of improving efficiency by reducing time required to record data.

Regarding claim 16, Lin further discloses a memory to store the results of processing the signal after receipt from the processor (col. lines 12-14 suggests that computer (3) has at least some limited memory in order to process (convert from analog signal to digital).

Regarding claim 17, Lin discloses a method comprising: loading a wafer-shaped detector onto a wafer stage of a first lithography tool (col. 4, lines 62-63, and col. 4, lines 1-7); detecting an amount of radiation from the first lithography tool (col. 3, lines 23-29) that is incident on the wafer-shaped detector. Lin does not disclose wirelessly transmitting a first signal (via conductors (13)) indicative of the amount of radiation incident on the wafer-shaped detector to a remote receiver. Mautz shows in Figs. 4-5 a method of wirelessly transmitting a first signal (via conductors (13)) indicative of the amount of radiation incident on the wafer-shaped detector to a remote receiver. It would have been obvious to one skilled in the art to incorporate the method disclosed in Mautz to the method of Lin for the purpose of improving efficiency by reducing time required to record data.

Regarding claim 19, Lin further discloses aligning the wafer-shaped detector on the wafer stage (col. 3, lines 55-62).

Regarding claim 20, Lin shows in Fig. 4, converting a signal indicative of the amount of the radiation incident on the wafer-shaped detector to the first signal (digitally processed by computer (3)).

Regarding claim 21, Lin further shows in Figs. 4-5 that said detecting the amount of radiation comprises measuring a dose of radiation.

Regarding claim 22, Lin further shows in Figs. 4-5 that said detecting the amount of radiation comprises measuring an intensity of radiation.

Regarding claim 23, Lin further discloses amplifying an output from the detector (amplifier stage would be provided within computer (3) prior to analyzing detector signal).

Regarding claim 24, Lin further discloses removing the wafer-shaped detector from the wafer stage (col. 4, lines 62-63, and col. 4, lines 1-7).

Regarding claim 25, Lin further discloses comparing the amount of radiation incident on the wafer-shaped detector to a pre-determined reference value (col. 4, lines 1-20).

Regarding claim 26, Lin further discloses adjusting a setting of the lithography tool if the amount of radiation incident on the wafer-shaped detector does not substantially match the pre-determined reference value (col. 4, lines 41-58).

Regarding claim 27, Lin discloses repeatedly detecting an amount of radiation from on the detector (28), and transmitting one or more second signal (via conductors

(13)) indicative of the amount of radiation from the first lithography tool detected by the repeated (col. 4, lines 55-58).

Regarding claim 28, Lin discloses the claimed invention as stated above. Lin further discloses loading the wafer-shaped detector onto a wafer stage of a secondary lithography tool; detecting an amount of radiation from the lithography tool that is incident on the wafer-shaped detector; and wirelessly transmitting a signal indicative of the amount of radiation incident on the wafer-shaped detector to a remote receiver. Lin does not explicitly disclose utilizing wafer-shaped detector in a second lithography tool. However, col. 3, lines 6-22 suggests that the wafer is designed specifically for portability which means that it may be used with more than one lithography apparatus to detect the radiation of a lithography tool. It would have be obvious to provide a wafer shaped detector to detect, transmit and record radiation from a second lithography tool for the purpose of reducing alignment and set-up time for setting up each lithographic apparatus.

Regarding claim 29, Lin discloses the claimed invention as stated above. Lin does not disclose comparing the amount of radiation detected by the detector in the first lithography tool to the amount of radiation detected by the detector in the second lithography tool. However, col. 3, lines 12-14 and Figs. 3-5 suggests that data obtained on a particular lithography tool would be portable and usable to any suitable processing (i.e., software) or storage media for analysis or comparisons. It would have been obvious to one skilled in the art to compare radiation between lithography tools for the

purpose of determining the lithography tool for an apparatus outputting the desired amount of radiation.

7. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (U.S. Patent No. 4,585,342) in view of Van Schaik (Publication No. U.S. 2002/0134947 A1).

Regarding claim 31, Lin discloses that the radiation detector is dimensioned to fit on the wafer stage of the lithography tool. Lin does not disclose an extreme ultraviolet lithography tool. Although Lin suggests in col. 5, lines 63-68 systems of different electromagnetic spectrums may be used provided that the detector signal is properly integrated. Van Schaik shows in Fig. 1, an extreme ultraviolet (EUV) lithography tool. It would have been obvious to one skilled in the art to provide an extreme ultraviolet (EUV) lithography tool such as disclosed in Van Schaik to the device of Lin for lithography applications in the UV spectrum requiring shorter wavelengths.

Response to Arguments

8. Applicant's arguments filed 03/16/2006 have been fully considered but they are not persuasive.

In response to applicant's arguments that, the addition of a wireless transmitter to Lin's device would increase hardware, the examiner disagrees. Nevertheless, after further consideration, claim 11 has now been rejected under 35 U.S.C. 102(b) as anticipated by Mautz and claim 14 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Mautz.

In response to applicant's arguments regarding claims 9 and 12 that Lin neither

describes or suggests a radiation detector that includes a memory or processor, the examiner disagrees. According to the amended claim language of claim 9, the memory and processor of Lin which is provided in the computer (3) is still sufficient to anticipate claims 9 and 12 because nowhere in these claims is there an indication of a requirement that the memory should be provided within the wafer or in close proximity to the wafer's surface.

In response to applicant's arguments regarding claim 15, that Lin neither describes or suggests a wafer substrate that is attached to a processor which is wireless, claim 15 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Mautz.

In response to applicant's arguments regarding claim 17, that Lin neither describes or suggests wirelessly transmitting a first signal indicative of the amount of radiation incident on the wafer-shaped detector to a remote receiver, claim 17 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Mautz.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Wyatt whose telephone number is (571)-272-5974. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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